Notebook Series -- Notebooks by Edison and Other Experimenters
Disc Record Book No. 10
Notebook, N-16-03-07

This notebook was used by Edison during March 1916 for notes on experiments to improve the manufacture of disc records. Two entries at the beginning of the book give a "Standard Printing Schedule" and a "Standard Transfer Schedule." These are followed by notes describing a sequence of experiments numbered from 478E to 511E in which the "standard" schedules are varied in terms of heat and pressure during the transfer and printing processes. Many of the entries include a summary of acceptable and unacceptable transfers or prints obtained. Among the problems noted are red spots and blisters. Other experiments in this sequence involve various processes of brushing varnish onto record blanks and experiments with the ovens. The entry for experiment 498E indicates that the test records were reinspected in May and September 1916. Some notes are in the form of instructions to Sherwood T. (Sam) Moore, Archie D. Hoffman, or other employees. Additional notes on some of the experiments in this book can be found in N-16-04-26, Notebooks by Other Experimenters—Phonograph Record Experiments—Miscellaneous Disc Composition Books. Inserted into the book are several loose items, including a note by Frederick P. Ott and a 1918 communication from laboratory employee Joe Miller to Edison. The front cover is labeled "10." The pages are unnumbered. Approximately 100 pages have been used.

Should transfers show red spots considerably the 300 lb pressure may have to be raised to 350 @ 375 if very bad possibly to 400 lbs

3-7-16

All Print Moulds are padded & old Discards -

3-7-16

Steam on Main Line 120 lbs

Standard Printing Schedule

1st Bring to contact

2= Put on steam,

3rd When platten Temperature 2" in reaches 200° Fahr. put the pressure to 100 pounds for One minute

4th Then put pressure up to 700 Pounds for Four minutes

5th Cool down to 125° Fahr and remove

Record Moulds - Taper inward at Edge

All the 478E were made on this Schedule

See note on other page back about transfers & red spots –

3-7-16

Standard Transfer Schedule

1412 Blanks, varnished with a brush –

Req 45cc Varnish,

Low rim plates 010 –

1st Bring to Contact

2 When Temperature reaches 180° Fahr put the pressure to 100 lbs. for One minute

Then put pressure to 300 lbs for 12 minutes

Cool + take out 125° Fahr

Transfers (I)

1 (1 OK 2 OK Red 6"
2 (1 OK 2 OK Black
3 (1 OK 2 OK Black
4 (1 OK 2 OK Black
5 (1 OK 2 OK black
6 (1 OK 2 OK Black
7 (1 OK 2 OK Black
8 (1 OK 2 — Black round piece ¼ by 1¼ long Cracked at Edge DIS
9 (1 One third of circumference has a closed crack
2 OK Red
10 (1 OK 2 OK Black
11 (1 OK 2 OK Black
12 (1 OK 2 OK Black

91.66

All free release

Inspection 2nd #9 Long Ck not opened 3-19-16

3-7-16

478E (I) Low rim plates

Padded Moulds

Use standard Transfers

and standard print schedule

Except final pressure 600 lbs for 5 minutes

Cool to 125° fahr & remove PRINT.

1 (1 OK 2 OK 95% filled
2 (1 OK 2 OK filled note mummy near mummy appears like a ck
3 (1 OK 2 OK filled
4 (1 OK 2 OK filled
5 (1 OK 2 OK 98% filled
6 (1 OK 2 OK 95% filled
7 (1 OK 2 OK 97% filled
8 (1 OK 2 OK 95% filled
9 (1 OK 2 OK 85% filled - long streak gone
10 (1 OK 2 OK 85% filled
11 (1 OK 2 OK 85% filled
12 (1 OK 2 OK 98% filled 1/16 mangnickles

100%

2nd Inspection 3-19-16
long Ck in #9 not opened up
#12 fried line Cks shows up

Transfers (J) Low rim plates

1 (1 OK 2 OK Little Red
2 (1 OK 2 OK Black
3 (1 OK 2 OK Black
4 (1 OK 2 OK Black
5 (1 OK 2 OK Black
6 (1 OK 2 OK Black
7 (1 OK 2 OK Black
8 (1 OK 2 OK Black
9 (1 OK 2 OK Black
10 (1 OK 2 OK Black
11 (1 OK 2 OK Black
12 (1 OK 2 OK Black

All free release

100%

478E (J) 3-7-16

Use standard transfers and standard print schedule

Except final pressure 500 lbs for 6 minutes

Cool to 125° Fahr & remove

1 (1 OK 2 OK 85% filled
2 (1 OK 2 OK 85% filled
3 (1 OK 2 OK 85% filled
4 (1 OK 2 OK filled
5 (1 OK 2 OK 85% filled
6 (1 OK 2 OK filled
7 (1 OK 2 OK 85% filled
8 (1 OK 2 OK 95% filled
9 (1 OK 2 OK 95% filled
10 (1 OK 2 OK 85% filled
11 (1 OK 2 OK 85% filled
12 (1 OK 2 OK 90% filled

100%

2nd Inspection - 3-19-16 all OK

1 (1 OK 2 OK Red 6"
2 (1 OK 2 OK Black
3 (1 OK 2 OK Red long closed line 1/2" at margin 5" long
4 (1 OK 2 OK Black
5 (1 OK 2 OK Black 91.66
6 (1 OK 2 OK Black
7 (1 OK 2 OK Black
8 (1 OK 2 OK Black
9 (1 — 2 OK Red 3/4 dia lift-ckd Discard
10 (1 OK 2 OK Black one has a circular line near edge not ckd.
11 (1 OK 2 OK Black
12 (1 OK 2 OK Black

All free release

NOTE with low pressure + longer time the Blanks themselves (not all) split but OK –

478E (K) 3-7-16

2nd Prep'd in 3-19-16 #7

Prints Cracked along the cook up probably that way originally

Use standard Transfers and standard print schedule

Except Final pressure 400 lbs for 8 minutes 66%

Cool to 125° Fahr + remove

1 (1 OK 2 OK 95% filled
2 (1 OK 2 OK 90% filled 1/16 margin ckd
3 (1 OK 2 OK filled 1/16 margin ckd
4 (1 OK 2 OK 95% filled 1/16 margin ckd
5 (1/2 not filled Enough DISCARD
6 (1/2 not filled at all 1"x4" Edge DISCARD
7 (1/2 not filled Enough DISCARD.
8 (1/2 not filled Enough – DISCARD
note Edges blank on numbering plates ckd in several This is strange!
9 (1 OK 2 OK 80% filled ckd lift in three blank
10 (1 OK 2 OK filled
11 (1 OK 2 OK filled
12 (1 OK 2 OK 80% filled

478 [I] Transfers

1 (1 OK 2 OK Black
2 (1 OK 2 OK Black
3 (1 OK 2 OK Red
4 (1 OK 2 OK Black
5 (1 OK 2 OK Black
6 (1 OK 2 OK Black
7 (1 OK 2 OK Black
8 (1 OK 2 OK Black
9 (1 OK 2 OK Black
10 (1 OK 2 OK Black
11 (1 OK 2 OK Black
12 (1 OK 2 OK Black

All free release

100%

478E [L] 3-7-16

Dup of K but of final pressure to be 800 lbs for 3 minutes

PRINTS

1 (1 OK 2 OK filled
2 (1 OK 2 OK filled ½ marqu ck
3 (1 OK 2 OK filled
4 (1 OK 2 OK filled to marqu ck
5 (1 OK 2 OK filled
6 (1 OK 2 OK filled 2nd Inspn 3-19-16 —
7 (1 OK 2 OK filled #1 feed line ck #6. feed line ck.
8 (1 OK 2 OK filled
9 (1 OK 2 OK filled
10 (1 OK 2 OK filled
11 (1 OK 2 OK filled
12 (1 OK 2 OK filled

100%

All perfectly filled — Edges shade rounded

478E [M] Transfers

1 (1 OK 2 OK Black
2 (1 OK 2 OK Black
3 (1 OK 2 OK Black
4 (1 OK 2 OK Black
5 (1 OK 2 OK Black
6 (1 OK 2 OK Black groups of 4 Cks 3/8 long Closed 3.1" from hole
7 (1 OK 2 OK Black
8 (1 OK 2 OK Black
9 (1 OK 2 OK Black
10 (1 OK 2 OK Black
11 (1 OK 2 OK Black
12 (1 OK 2 OK Black

100%

All free release

478E [M] 3-7-16

Padded Print Moulds (Old discards wkg moulds)

Dup of K

But final pressure 1000 lbs for 2 minutes,

PRINTS

1 (1 OK 2 OK filled
2 (1 OK 2 OK filled
3 (1 OK 2 OK filled
4 (1 OK 2 OK filled
5 (1 OK 2 OK filled 1/32 marquecks
6 (1 OK 2 OK filled
7 (1 OK 2 OK filled
8 (1 OK 2 OK filled
9 (1 OK 2 OK filled
10 (1 OK 2 OK filled
11 (1 OK 2 OK filled 1/16 marquecks
12 (1 OK 2 OK filled

100%

2nd Insp'n 3-19-16 OK - nothing developed -

Perfectly filled

good blank edges -

1 (1 OK 2 OK Black

2 (1 OK 2 OK Black slight ck at hole mechanical

3 (1 OK 2 OK Black

4 (1 OK 2 OK Black

5 (1 OK 2 OK Black 91.6

6 (1 OK 2 OK Black

7 (1 OK 2 OK Black

8 (1 OK 2 OK Black

9 (1 OK 2 OK Black

10 (1 OK 2 OK Black

11 (1 —— Red lift ckd in music ½ due Black 2 OK Black

12 (1 OK 2 OK Crack at hole ¼" Black

478E N

Standard Transfers
Except yesterdays Var plates used which was poor + Cracked so much + which had raised + was so bad upstairs — + red

PRINTS

1 (1 OK 2 OK filled

2 (1 OK 2 OK filled

3 (1 OK 2 OK filled

4 (1 OK 2 OK filled

5 (1 2

2 (1 OK 2 OK filled

7 (1 OK 2 OK filled

8 (1 OK 2 OK filled

9 (1 OK 2 OK filled

10 (1 OK 2 OK filled

11 (1 OK 2 OK filled red left ck in there but black

12 (1 OK 2 OK filled

91.6 %

all perfectly filled

1 (1 OK / 2 — 2 cracks 1/4 long at hole

2 (1 OK / 2 OK Black

3 (1 OK / 2 OK Black

4 (1 OK / 2 OK Black

5 (1 OK / 2 OK Black

6 (1 OK / 2 OK Black

91.66

7 (1 OK / 2 OK Black

8 (1 OK / 2 OK Black

9 (1 OK / 2 OK Black

10 (1 OK / 2 OK Black

11 (1 — Low place at edge 1/2 in + 4" long Marquicks / 2 OK Black 1/4 inch in from edge — Plate has deep grooves + friction caused them probably

12 (1 OK / 2 OK Black

After Printing a red left shows Var very tough Can be bent

MM 478 E

3—7—16

Put in Contact — Put on steam, when Thermom gets to 170 put pressure to 100 lbs for 1 minute, then 300 lbs for 12 mins — Cool — remove at 125° Fahr

Used new straight Mould holes. accurate within 001 of inch — Padded moulds for Printing

Reg 45 cc Var 010 Edge plates, 1412 brushed blank

Print

1 (1 OK Tracked Mould / 2 +ted line cks - not tapered Enough

2 (1 OK filled / 2 OK

3 (1 OK filled / 2 OK

4 (1 OK filled 1/16 marquicks / 2 OK

5 (1 OK filled / 2 OK

6 (1 OK filled / 2 OK

7 (1 +ted line cks / 2 OK } Tracked Mould mould not tapered enough on back side

8 (1 OK filled / 2 OK

9 (1 OK / 2 OK filled — tapered right it would be 100%

10 (1 OK filled / 2 OK

11 (1 OK 99% full - low place printed out Cant find Margin Cracks / 2 OK

12 (1 OK filled / 2 OK

← This Varnish is Brittle Cant bend, snaps Very Sensitive to draft — Cuts hard

1 (1 OK, 2 OK) Black

2 (1 OK, 2 OK) Black

3 (1 OK, 2 OK) Black

4 (1 OK, 2 OK) Black

5 (1 OK, 2 OK) Black

6 (1 OK, 2 OK) piece broke out at edge handling, Black

7 (1 OK Black, 2 Big red lift ckd no weld) DISCARD

8 (1 OK, 2 OK) black

9 (1 OK, 2 OK) black

9/1/6

10 (1 OK, 2 OK) Black

11 (1 OK, 2 OK) Black

12 (1 OK Black, 2 OK faint red spot ½" dia -)

160 is probably too low, but not certain as Tracked Mounds were not given properly later + Var is Grille + irregular tonight

478E

P

Transfer

Standard schedule Except when Thermometer reaches 160° Fahr put pressure to 100 lbs for 1 min then raise to 300 for 12 min, Cool + remove at 125° Fahr

1 (1 OK, 2 OK filled)

2 (1 OK, 2 OK filled)

3 (1 OK, 2 OK filled)

4 (1 feed line ck Tracked M, 2 margin to in cks)

5 (1 OK, 2 OK filled)

6 (1 OK, 2 OK filled)

100% of tracked black been fixed right -

7 (1 OK but poor fill opp lift with lines pulled out before punching, 2 — big lift,)

8 (1 OK, 2 OK filled)

9 (1 feed line cks, 2 feed line cks, Tracked Mound)

10 (1 OK, 2 OK filled)

11 (1 OK Black, 2 This had a big blister & Touched it with pencil point & it cracked. It is black but did not have more than 80% fill —)

12 (1 OK, 2 OK filled)

(The Varnish is very thin over an area of 2½ X 6" + then its thick — It was black + had to wash but after air blown it up after taking print out

480E 3-7-16

Experiment on Ovens to get Varnish not so much Condensed & sensitive to draughts, + not so subject to Rains —

The Schedule to be pasted here when finished —

Started Oven 1 am 3-8-16 -

Transfer Note Only 6 min at 300

1 (1 OK 2 OK Black

2 (1 OK 2 OK Black

3 (1 OK Black 2 OK. 2 Red spots gas still under Chem

4 (1 OK 2 OK Black

5 (1 OK 2 OK Black

6 (1 — chip out Cracks at Edge Mechanical - 2 OK

7 (1 OK 2 — 2 Red spots, both cracked

8 (1 OK 2 OK Black

9 (1 OK 2 OK Black

10 (1 — small red spot ckd 2 OK

11 (1 OK 2 Big red - left Cracked

12 (1 OK - Black 2 — 8 Radial Cracks at margin

66%

478E Q Var Lot number 275

Transfer

Put in Contact
Put on Steam

Where red spots taking out warm may ck red spots by fume

When Therm reaches 180° Fahr. put pressure to 100 lbs for 1 min Then put pressure to 300 lbs for 6 minutes Cool + remove at 125° Fahr

Pxmt

1 (1 OK 2 OK filled

2 (1 OK 2 OK fill

3 (1 OK 2 OK fill no sign of red spot

4 (1 OK 2 OK filled

5 (1 OK 2 OK filled

6 (1 OK 2 OK chip out found

7 (1 OK 2 feedlines - Tcked Moulds (ck) red spots missed afterwards found

8 (1 OK 2 feedlines Tracked Moulds

9 (1 OK 2 OK filled

10 (1 OK 2 OK filled red spot found finally found (not found red spot at first)

11 (1 Big left Ckd 2 OK

12 (1 The 8 radial Cks missed at first but finally found 2 OK

NOTICE 3-7-16

If blanks come thin than those we determined the schedule with we are liable to have red spots Cracked, because the thinner the blank the less it will flow to allow Varnish to touch all over - So we must NOT use or allow blanks to be made thinner than those used in determing schedule. If they are a little thicker it will not harm -

To night we found some old 1412 Feby 26 Calipering thinner - Using Standard schedule 50% of them gave big red lifts no weld - The 300 lbs not being enough for a thin blank
also if blanks have dried out they will not flow as much on a given pressure as a newly made blank with still some alcohol in the shellac

Of course this can be corrected by increasing the pressure from 300 to 400 lbs on a transfer thus the extra 100 lbs will press out the blank flater & allow the red spots to touch & weld, The red spots are not more than .0005 from welding

Nos 478 F & G shows with proper blank standard transfer & Print schedule will take care of Even & specially selected uneven Varnish plates

Transfers — R-

1 (1 OK, 2 Red spot ½" ckd Black DIS

2 (1 near Edge 3/8 in 5" Long crack DIS, 2 pull out near Margin

3 (1 OK, 2 big red. ckd DIS

4 (1 OK, 2 OK fills)

5 (1 OK, 2 OK Black

6 (1 — Edge v chip out DIS, 2 OK

7 (1 OK, 2 OK black

8 (1 OK, 2 OK black

9 (1 OK, 2 OK black

10 (1 OK, 2 OK Black

11 (1 OK, 2 OK Black

12 (1 Red Spot and 2 cks at hole DIS, 2 big crack at Edge 30° angle run in 3/4" — Long chip of Vair pulled off at Edge & 2 cks at hole -

40%

This varnish sticks to plates badly
Scarcely any free release

478 E [R]

Reg Transfer Schedule 180° Tab

387 45 cc Var instead of Regular

Var —

1 (½	9 (½
2 (½	10 (½
3 (½	11 (½
4 (½	12 (½
5 (½	
6 (½	
7 (½	
8 (½	

This schedule dont fit this Varnish
NO Print

1 (1 OK 2 OK Black

2 (1 OK 2 OK Black

3 (1 OK 2 OK Black slight ck at hole

4 (1 OK 2 OK Black

5 (1 OK 2 OK Black

6 (1 OK 2 OK Black

7 (1 OK 2 OK Black

8 (1 OK 2 OK Black

9 (1 OK 2 OK Black

10 (1 OK 2 OK Black

11 (1 OK Black –
2 3 angle Cks 1/4" in from Edge - DISCARD

12 (1 OK Black
2 — 2 Cracks at hole Mechanical

9-1-66

478E [S]

Req schedule Except 400 lbs final pressure instead of Regular 800 — to stop rel

Shots on our Req Var bought which seem to be thin in spots + brittle —

1 (1 OK 2 OK 1/16 margin ck

2 (1 OK 2 OK

3 (1 OK 2 OK ck at hole filled

4 (1 OK 2 OK 1/16 margin

5 (1 OK 2 — 1 very fine feedline ck DIS

6 (1 OK 2 OK

7 (1 - Margin ck 3/16 in DIS 2 OK

8 (1 OK 2 OK

9 (1 — feedline — Tcked M 2 OK

10 (1 OK 2 OK

11 (1 OK 2 OK filled) allright 2 cks at Edge

12 (1 OK 2 feedline Cks Tracked M

9-1-6

478 [T] Transfer.

1 (1 OK 2 OK Black 2 chs at hole Weakness

2 (1 OK 2 OK Black one red apot 1/8 x 1/4"

3 (1 OK 2 OK Black

4 (1 OK 2 OK Black – r chip out at Edge Weakness

5 (1 OK 2 OK Black

6 (1 OK 2 OK Black

7 (1 OK 2 OK Black

8 (1 OK 2 OK Black

9 (1 OK 2 OK Black

10 (1 OK 2 OK Black

11 (1 OK 2 OK Black 1 red apot 1/8 x 1/4" found.

12 (1 OK 2 OK Black.

100%

478E [T]

Req schedule to see if Red Spots appear –

Thus is back to 300 lbs –

New Oven Schedule
3-11-16

Low rim plates 010-

Plates	480		
Wrinkled	14		
injured	3	9	Even plates
Bubbles	23	253	uneven "
Cracked	5	37	patched "
Chipped	3	78	wrinkled "
Dirt	2	52	Bubbles "
Dimple	1	429	
Discards	51		
Good plates	429		

89.3%
or 92.5 Excluding wrinkles

No Lifts.

Moore has tried wear tests on New Bake Reg blank - 15 min Schedule — 250 times - It wears pretty good shows slight yellow dust, after cleaning the wear + unwearied surface not bad, Undermiers show wear but not great shows a certain amount of plasticity, 20 minutes in press would harden still more if necessary - perhaps plasticity is good for Cracking —

Continued

Reg Plates

plates	1200			
Wrinkled	18		593	Uneven plates
Uneven	46		183	Patched "
Bubbles	134		41	Even "
Raised	1		38	Bubbles "
Cracked	2		95	Wrinkled "
Chipped	7		950	
injured	23			
Dimples	19			
Discards	250	950 ok		

79.1

New Bake

1 (1 OK 2 OK Black

2 (1 OK 2 OK Black

3 (1 OK 2-3 ¼" Cracks at hole

4 (1 OK 2 OK Black

5 (1 OK 2 OK Black

6 (1 OK 2 OK Black

7 (1 OK 2 OK Black

8 (1 OK 2 OK ½" Red spot OK

9 (1 OK 2 OK Black

10 (1 OK 2 OK Black

11 (1 OK 2 OK Black

12 (1 OK 2 Chip out mechanical

91.66 –
Cracks at hole
a Discard
+ mechanical
Counted OK
as far as Blanker transfer
prints as concerned

478E U1

See pasted in Schedule
1412 Standard Schedules

Reg Var NEW BAKE as per
record 1 page back –

For time tests

1 (1 OK 2 OK

2 (1 OK 2 OK

3 (1 OK 2 OK

4 (1 OK 2 OK

5 (1 OK 2 OK

6 (1 OK 2 OK

7 (1 OK 2 OK.

8 (1 OK 2 OK

9 (1 OK 2 OK

10 (1 OK 2 OK

11 (1 Poor print not filled inside – poly low Var plate 2 OK +

12 (1 2 feedline ck – chip out from transfer. Mould 3-004
poor print at crack 1/32 x 1/8 –

83.3

1 (1 OK 2 OK Black
2 (1 OK 2 — Red sp at 1/4" - 1/8 blistered up OK
3 (1 OK 2 OK Black
4 (1 OK 2 OK Black
5 (1 OK 2 OK Black
6 (1 OK 2 OK Black
7 (1 OK 2 OK Black
8 (1 OK 2 OK Black
9 (1 OK 2 ck at Edge, angle 1/8 in done by Edging Machine OK
10 (1 OK 2 OK black
11 (1 OK 2 OK black
12 (1 OK 2 chip out at Edge Mechanical OK

100%

outside measurement

478 $\boxed{U_2}$ See pasted in schedule 1412 3-10-16

1 Low Bake-

Dup of $\boxed{U}$

for time tests—

1 (1 OK 2 OK
2 (1 OK 2 OK
3 (1 OK 2 OK
4 (1 OK 2 OK
5 (1 OK 2 OK
6 (1 feedline ck Moved 20 2 OK
7 (1 OK 2 OK
8 (1 OK 2 feedline ck near dents of plate
9 (1 OK 2 OK count are ck that cross — bracemfr
10 (1 OK 2 OK
11 (1 faint present inside —
12 (1 OK 2 OK

75%

1 (1 OK
2 OK chipped out little around the hole

2 (1 OK
2 OK

3 (1 OK
2 OK

4 (1 OK
2 OK

5 (1 OK
2 OK

6 (1 OK
2 OK

7 (1 OK
2 chip out + ckd due To Edger or Clank giving away

8 (1 OK
2 Ckd at Edge, chip out, looks as if it started in Edging

9 (1 OK
2 OK

10 (1 OK
2 OK

11 (1 OK
2 OK

12 (1 OK
2 OK

[redacted] 83.3

478 $\boxed{U_3}$ See pasted in 3-11-16 schedule.

Low brake

1 (1 OK
2 OK

2 (1 OK
2 OK

3 (1 OK
2 OK

4 (1 OK
2 OK 3-19-16 opened up closed ck radius.

100%

5 (1 OK
2 OK

as far as print

6 (1 OK
2 OK

7 (1 OK
2 OK as far as print is concerned

8 (1 OK
2 OK

9 (1 OK
2 OK

10 (1 OK
2 OK

11 (1 OK
2 OK

12 (1 OK
2 OK

Reinspection 3-19-16 #4 closed ck opened up apparently —

1 (1 OK
2 OK
2 (1 OK
2 Red spot ckd - it was a very uneven phase
3 (1 OK
2 OK
4 (1 — Very bad lattice Cracks radial in music
2 OK
5 (1 OK
2 OK
6 (1 OK
2 OK
7 (1 OK
2 OK
8 (1 OK
2 OK
9 (1 OK
2 — cks at hole
10 (1 OK
2 chipped around Edge, + ckd due to Edge or blank
11 (1 OK
2 OK
12 (1 OK
2 OK

66%

See pasted in Schedule
3-11-16

478 $\boxed{U_4}$

Neo-Bake
For time tests.

	3-19				
1 (1 OK 2 OK					
2 (1 OK 2 OK Red spot ck in Transf					
3 (1 OK 2 OK	2 new				
4 (1 OK 2 OK Lattice Cks there					
5 (1 OK 2 OK					
6 (1 OK 2 OK					
7 (1 OK 2 OK					100%
8 (1 OK 2 OK					
9 (1 OK 2 OK					
10 (1 OK 2 OK					
11 (1 OK 2 OK					
12 (1 OK 2 3 cks					

100%

margin may have been in transfer as Edge ragged + white from buffing
you transfer it.

3-11-16-

We transferred 600 low plate Reg Var on 1412 blanks New schedule High Reg Bake like 478 -

Transfers	600
OK	544
Cooked Center	1
Lifts Cracked	18
Cracked plates	6
Bird	1
Blank Cracked	1
Cracked Var -	27

OK 90%

Mostly Edge Cks Chipped blank bad -

Printed - 374 -

Discarded for

Run Outs	10
Cracks	28
Poor pts	7
	45

Really due To prints -

Mould Knocks	14
Dents in Var plate	3
Rough Surface	10
Feed line Cks	32
Scratch	1
White + Silver Spts.	4
Holes "	5
Feather line + Hair	3
Chipped Edge	1
	73

481 E

Moore is to select a dozen Varnish plates which have been baked and a little Cracked, These are to be repaired by putting a little repair Varnish along the Cracks + Re baked, then if OK Transferred on 1412 blanks new stand and schedule also prepared —

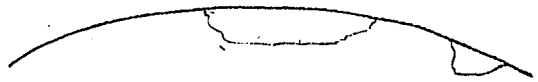
NOTICE

Canot find any that have short Cks, those that are Cracked go clear across + are unrepairable

482 E

Moore

Inspect ~~at~~ 500 1412 blanks for Crack at Edges,



Some are evidently injured in handling after moulding

Inspected by girl —
444 Blanks found only 4 Chipped out on Edge by handling

Note.

Couldnt find a angle on that was Cracked.

483 E

Assemble 100 Transfers - with Reg bake Blanks put them in press then remove them take them apart & Re inspect for Cracks —

I want to insure myself that none of the Varnish plates are Cracked in handling —

S

Reprint-

Original Print 12- 11 OK 1 poor print
This is with Req schedule 4 min- 700 lbs

1st Reprint at 800 lbs prints 2 minutes
Same Records — 9 OK
2nd Reprint at 900 lbs —
8 OK —

We note that twice a record may give a poor print but the 3rd time print OK —

484E

Take 24 new blank records
Reprint them on following schedule a dozen times
Inspect & record after each Reprint

Schedule Put in Cowcard
When Thermometer reaches 200 deg put pressure at 100 lbs for 1 min
Then 700 lbs for 2 minutes
Cool & take out
about 125° Fahr

High Rim Plates

Plates	840
Wrinkled	10
Bubbles	111
Raised	1
Cracked	5
Chipped	3
Dirt	6
Injured	5
Dimples	6
	172
OK	668

OK	
Even	49
Uneven	360
patched	173
Wrinkled	62
Bubbles	24
	668

79.5

Duplicate run as per schedule of 3-10-16 pasted in book called low Schedule

Reg Van on high & low rim plates –

Low Rim –

Plates	840
Wrinkled	15
Uneven	13
Bubbles	108
Cracked	7
Chipped	8
Dirt	7
Injured	10
Dimples	6
	174
OK	666

OK	
Even	20
Uneven	432
Patched	79
Bubbles	83
Wrinkled	52
	666

79.2%

Another Low Bake as per schedule of 3-10-16 pasted in this book
3-13-16

	Low Rim		High Rim	
Plates	840		840	
Wrinkles	32	Note	4	
Uneven	7		60	Note
Bubbles	87		98	
Raised	1		00	
Cracked	9	Note	00	
Chipped	5		4	
Injured	24		9	
Dimples	5		5	
Discards	170		180	
ok	670		660	

78.5

Oks are
Even 18
Uneven 392
Patched 61
Wrinkled 96
Bubbles 103
670

80%

66 Even
480 Uneven
72 Patch
18 Wrinkled
24 Bubbles
660

Low Bake — 15 min Reg schedule
Transfers

Transferred	72
OK	60
Pullouts	9
Bird	1
Cracked	2

83% OK

20 minute Schedule

Transfd	72
OK	61
Pullouts	5
Cracked	5
Mechanical	1

84% OK

3rd Bake Low Bake as per schedule 3-10-16 pasted in this book

Low Rim

Plates	480		
Wrinkled	14		
Injured	3		
Bubbles	23	9	Even
Cracked	5	253	Uneven
Chipped	3	37	Patch
Dirt	2	78	Wrinkled
Dimples	1	52	Bubbles
	51	429	
OK	429		

High Rim

Plates	1200		
Wrinkled	18	593	Uneven
Uneven	46	41	Even
Bubbles	134	183	Patched
Raised	1	38	Bubbles
Cracked	2	95	Wrinkled
Chipped	7	950	
Injured	23		
Dimples	19		
	250		
OK	950		

79.1%

Another fast Low Bake Transfer

	15 min	20 minutes
Transfer	165	165
OK	153	159
Pull Outs	7	2
Burnd	1	1
Ckd Var	2	
Mechanical	2	3
	92% OK	96% OK

Varnish made from Recovered phenol 58.1 6/4

Transfd	161	
OK	75	46%
Pull outs	40	
Burds	13	
Cracked Var	33	

Reg Bake

Plate flowing

Plates	380	10	Even
Wrinkled	3	227	Uneven
injured	1	35	Patched
Bubbles	5	37	Crinkled
Raised	48	17	Tree Blisters
Chipped	2		
	59	321	

OK - 321

84.5%

Special Var made from
Resin with High free phenol

22.2 free phenol in Resin —
Baked Reg 9 ~~Hours~~ High Bake

346 plates
346 Discarded for Bubbles
10 Raised —
All discarded for bubbles —

Dup on Low Bake

350 plates.
350 Discarded for Bubbles
1 Raised —

Not so many bubbles per
plate on low bake

00% all bad

Note -

It is probable that the lower the Bake say 210 @ 200 the less the defects in Varnish will persist thru Transfer + print,

For instance wrinkles in Varnish will get so set that in transferring or printing they will persist + return

If the bake is low + short about 170. the Varnish will not be greatly hardened in Oven, + most of it done in transfer, hence wrinkles will not have same tendency to return -

Moore = Note a change you might try in Reg Low Bake as shown in dotted line

485 Burned Blanks

Transfer — 1412 Blanks

Schedule ~~5 minutes at 100 lbs~~
~~12 minutes at 300 lbs.~~

Put at contact, when reaches 180° Fahr
put on 150 pounds — Hold.
at 150 lbs pressure for 5 min
Then 12 minutes at 300 lbs.
take out ~~[illegible]~~ Cold -

12 = Inaccepted —

2 Blisters -
6 parallel Cracks 1/16 to 1/8 in

Rest OK —

Thes shaves go
gets out.

486- 1/2 of these after
Reinspection & Carefull marking
of defects are to go over
ovens for time test
+ 1/2 put in Chemical
Room over Cases
for time test -

486E Transfers

1255 Var lot 389 - 1412 D lot 63

NOT BRUSHED

Transfd 72
OK 63
2 Cooked Centers
3 Red Blisters
2 Ckd Var
2 Chipped Centers

Prints 63-
OK 48

Margin Cks 2
Poor Prints 5-
Angle Cks 2
Cracked at hole 6 -

Broken blank & Edges is due to swelling of blank so Edge of the transfer plate is on the Edge of blank & couldn't help break out

487 E

Transfer 48 1412 blanks - with varnish on Edges only 4/4" in -

Reg Var plates 9 hour -

Print Inspect well & mark defects & put 1/2 in Chem Room & 1/2 over ovens -

OK ||||| ||||

Blister not ckd ||

Broken Edges on 2

One blister puffed way up not broken - air under pressure in it I think -

488 E

Blanks not Crushed

Transfer 12 1412 6 Blanks
Req Vari - 9 hour Cock

Put at Contact needle just
off pin — When temp
gets 180° take put at
150 lbs for 6 minutes —

then run 300 lbs pressure &
hold for 10 minutes.

Dont buff or Edge

Blistered & Crushed Edges of 6 Cauk 1
Cracked at Hole 1

OK 11

Crushed Edge of 6 Cauk 1

Crushed Edge angle 11
" " V 11
" " parallel 1/16 11

Blister bottom side Lot #96

1 side Blister ||||
V chip out ||||
Parallel Cks ||
No Blisters |||| ||||
Angle Ck ||
OK |

Reg 1412, brushed — as comparison
Lot 91

other side
No Blister |||
V chip |
Parallel Cks |||
Blister
OK |||| |||
Blister 1 side
Angle Ck 1

Baking the blank Dont seem to be any good in stopping Blisters —

This appears to show that blisters come easier on dry smooth blanks as there is nothing to anchor veneer down or it is due to gas holding veneer away from blank till most of gas is out then the 300 lbs presses it against blank
One or other theory must be ok

489 E

Bake 50 1412 blank not brushed, Run them then on Reg 9 hours schedule on oven with the Reg Vacuum plates +

Afterwards transfer them using regular vacuum plates of Reg 1412 blank schedule give me record,

490-E

Dup of 485E

But blanks are not brushed —

OK III 1

Blister at Hole-drawn 1

V Edge ck II

Angle Ck 1

Red angle blocks from Edge ck'd 1

OK 11
Blisters (Ck'd both sides forces 11
" " one side " 1
Edge parallel to 1
Angle V 1

The tracks dont seem to do any good in permitting gas to get out.

491 E

Take 6 - 1412 blanks use traced blank records on them, & use same schedule as you transfer with — Blanks not brushed after inspection, Transfer with Reg plates — Transfer same schedule as 495 was transfered

492 E

12 1412 Blanks not brushed —

Use smooth plates - flat & Run them Reg Transfer Schedule for 1412 blanks.

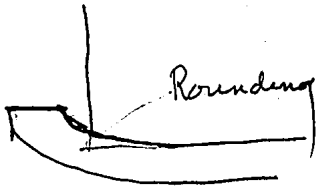
If after inspection they are OK Transfer Reg Varnish plates on them —

Blistered - ||||| ||||

Edges OK |||

Edges Bad ||||

Pressing with smooth plate before transfer makes much worse as it closes pores; by melting lac & gas cannot get out at all —



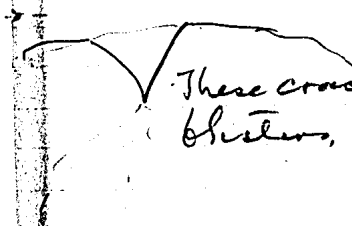
Lubs turning out.
fillet on 50 plates

493 F

490 E

Duplicate ~~485 E~~.
With 1412 blanks not
brushed But Edge the
blanks - 1/32 less diameter

Didnt do any good The Edges
of Varnish, broken away 1/8 in
due to rounding off plate,



494E

Edge 24 blanks 14 12
1/8 inch less Diameter
& make 12 transfers
Blank not ~~[illegible]~~
brushed - same
schedule as 495 E

2 Red -
8 Very bad margin crack
Cracks much coarse than
with reg size blank
1 Margin Crack
1 OK
This is no good Reg size
better -

495 E

12 1412 blanks not brushed

Req transfers, put at contact when the temp reaches 180° Fahr put on 300 lbs pressure and hold for 12 minutes, cool & take out at 125° Fahr

Surfaces

Ok ||||

V Edge pull out 1 -

No Blisters ||||||||||||||||||| — No Blisters

Angle ck ||||

Margin ck 1

Chip out along Edge 1

Blank ck'd 1

Parallel 1

But gas makes bad Edges — Cracks Etc.

496E Inspected before buffing

1412 blanks brushed. Blanking having 1 1/3 shellac instead of 1 shellac

Req schedule on transfer

OK |||| |||

CK Blisters all over faces – 1

not CK " 1 not chkd

gas cks at Edges V etc ||| – bad blank

Only 2 blisters on this Run + its req schedule

The shellac dont do the buz appearantly –

perhaps it wants 1/4 less lac than req – proportionately.

497E

Req Varnish plates run
3 hours at 230 instead of
1½ hours to get more
gas out of Veneer -
just added 1½ hours more
to req oven schedule
at the high point 230 -

Seperately from regular
1412 with transfers
using Alternate Back

Put away April 27 — Don't say if anything wrong
Remspected May 8 — 1 coat

May 8 — 1. Bellied up — poor print approach
2 flat " "
3 flat " "
4 " " "
5 " " "
6 dished

Surfaces good as at 1st —

Remspected May 24 1916 —

May 24
OK — Dished bad
OK — " some
OK — " some
OK — " a little
OK — " bad
OK — 3 pull outs (Can't be sure was originally thinks they were) dished
OK — dished some —

Surfaces about same
All are much more dished than on May 8th —

Sept 12/16 —

Surfaces about as original — no new defects have come in that I can see — Except nearly all have some run outs,

498E 6 of them

Use reg 1412 brushed 1 grain blanks, ~~[illegible]~~ press these blanks with Tracked moulds instead of — Varnish plates, Use reg transfer schedule Except final pressure to be 500 lbs' —

NOTE Surfaces better than they were 2 yrs ago, no Run Outs, and nearly as good as our reg blank made now — No matter with little more brushing & Care think we can get surfaces nearly as good as 1412 Transfer Var plate,
Will take up Experiment with this

499 E

1508 Hoffman

12 blank 1412 / 1/3 more shellac — Transfer with Reg plates — Brushed

Put at Contact needle just leave pin, when temp reaches 180° Fahr put pressure at 300 lbs + hold for 12 minutes Cool to 125 + remove

This is to compare with 496 — made with Reg Schedule

All [illegible]
as [illegible]
[illegible]
[illegible]
Padding 01 is too much prevents a
full dahen printing - but [illegible]
compared to non pad [illegible]
Bridge wall on some pull off
on mould in some
Think more than 498
which had reg blank
1508 - flows very much
more than reg blank
& probably no gain -
Certainly not to put any
more lac in -
as probably Coulomb dont
stick to lac like it sticks
to fibre
Only defect blanks edge crinkled
probably 010 padding did
it & padding may not be
necessary with the reason

500-E 11

Use Hoffman 1508 blank
1 1/3 Lac - Brushed -

Press the blank with
tracked & Music Moulds
No transfer used,

Schedule -

Put Contact, when
temp reaches 180° Fahr
put pressure to 500
lbs & hold for 12 minutes
Cool & remove
at 125°

501 E Inspected before Buffing

1412 Bruised blanks —

Use the special Music room plates blown 20 min with big restaurant fan 010 Edge

Reg Schedule —	Reg to check	
OK 1	~~IIII~~	
OK Sides III	I	
Edge Blisters Ckd ~~IIII~~ IIII	II	
Angle Ck faces		
Edge Blisters not ckd ~~IIII~~		
Crinched blank at Edge ~~IIII~~	~~IIII~~	Same
Blisters Not at Edges —	~~IIII~~	Very large

This shows what a great difference it makes according to how plates are flown

502.E

Rent

Flow 100 plates with 25 cc of Regular Varnish, in Music room

Bake Regular –

Transfer 12 1412 blanks brushed, with above plates regular Schedule for 1412 blanks –

OK

One side Red blisters long at Edge ckd. III

Both sides " " " II

Reg Blisters 1 side ckd II

OK IIII

Ckd at Edge from a V I

Cannot stop blisters at 300 lb pressure with Reg blank it is too thin & also too dense dont compress enough –

503 E

Paint 20 Varnish plates with 3 coats of brushing Varnish drying two hours between each layer + 2 hours after

~~Bake in [illegible] Date~~

Bake in oven Req schedule

Transfer on 12 1412 blanks brushed - using Req schedule used for 1412 blanks

504 E

Reg 1412 blacks - brushed one coat Dipping Varnish

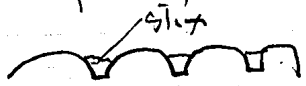
Dried two hours -

Printed direct on 1412 schedule 300 lbs finish -

Printed with regular working moulds now being used & not padded

The surfaces appear about as good as regular seconds -

Bridge walls pulled out in spots on many shoots to usually



This is because veneer too weak - But 9/10 is due to not a full in spots -

OK ~~III~~ IIII.

Pull out at hole not covered probably with Var-Lac check / Parallel Cks 1 will edge out Margin Ck 1 –

NOTICE

$1\frac{1}{3}$ Lac is best blank for direct as Edges are good No Crush

But must not pad mould

nearly all have spots that dont print full hence must improve blank + improve surface by 2 coats or other means –

505E

Dup 500 but use regular music working moulds now in req use –

Print direct on blank of 500E Hoffman 1508 – brushed

Schedule –

Put at contact needle just off pin – when temp reaches 180° Fahr put on 500 lbs + hold for 12 minutes – Cool + remove at 125° Fahr

505 & 506

Wear tools on 500 E & ~~498~~ 504 E

507E

Hoffman Make several hundred blanks duplicate of your 1508 containing 1.1/3 shellac -

Make them good, be sure powder very fine Screen it in your high angle screen to get it very fine -

508 E

Hoffman to furnish

½ gal Req Var, but add 15%
more alcohol to it
I understand 145 alcohol to 100
Resin is used
to get 15% more alcohol.
21.75 more alcohol should be
added making 166.75 alcohol
to 100 Resin — This alcohol
Can be added to the req var
already made

Duplicate this but ½ gal
with 25% more alcohol added
or 36.25 added making
total 181.25 alcohol to 100 Resin

Want to flow thin Var plates +
Req Var too thick -

6 with 15cc

1 - fine red line Extreme Edge OK
1 - Red line 3" Long 1/8 wide 1/8" from Edge OK
1 - Red line 3" Long 1/4 wide 1/8" from edge OK
{ 1 - " " " 1/4" " Chd
{ 1 " " " 1/4" " Chd
1 Big red spot 1 1/2 wide, 3 1/2 Long slanting 1/8" from Edge, Cracked.

1 = 5" Long scad 1/2 @ 3/4 wide 1/2 from Edge Cracked -

Blank dont flow enough to permit veneer to touch all of blank - Wants 400 lbs + 150# Blank -

509-E

Transfer 12 blanks 1412 brushed —

Rejected 6 of them with 22 1/2 cc
6 with 15cc

Both in same press

Use Reg 1412 Schedule

---

6 of 22 1/2 cc
OK
OK
1/4 by 1/2 along Edge broken and worn red
Red streak 1/4" of Edge 3" Long notched OK
1 near Edge large Chd —
{ 1 1/2" round scad 1 1/4" in from Edge - Chd
{ another place at Edge 3/4 x 1 1/2 Long - Chd

Blank dont flow enough - wants 150#, in the Event 400 lbs wont stop Red -

510E

Hoffman –

Make 200 blank with
1.66 of shellac instead of 1 shellac
finest powder

~~and about 50 blank fo~~
and about 50 blanks from
this lot of powder 1/32
thicker than usual –
50 blanks 1/16 thicker than
usual
50 Blanks usual thickness
save balance powder

Moore says that in the past the working moulds had generally high & low spots which would show up bad on a direct print, by not filling in a spot, & if this was not known it would be laid to the blank

He says now that he has got Mould dept to clap it of that all new working moulds have no unseen spots varying more than 1 or 2 1000th —

This is very important if Direct printing is successful

Notes —

It is impossible to make transfers without blisters unless the blank can be compressed to take care of thick & thin varnish also of the spotted unequalities of the density of the blank itself —

All blanks have spots which are less dense that other parts of the press, also lower & higher spots —

If you print direct with a music mould on the blank itself. There will with say a pressure of 300 lbs be many places not filled — if you raise pressure to 500 lbs the unfilled places will diminish — If 700 lbs is used 1/2 of all the blanks will show spots not filled

on both sides. If now the blank is made more dense or the same density but thinner, the unfilled spots will increase in size & number.

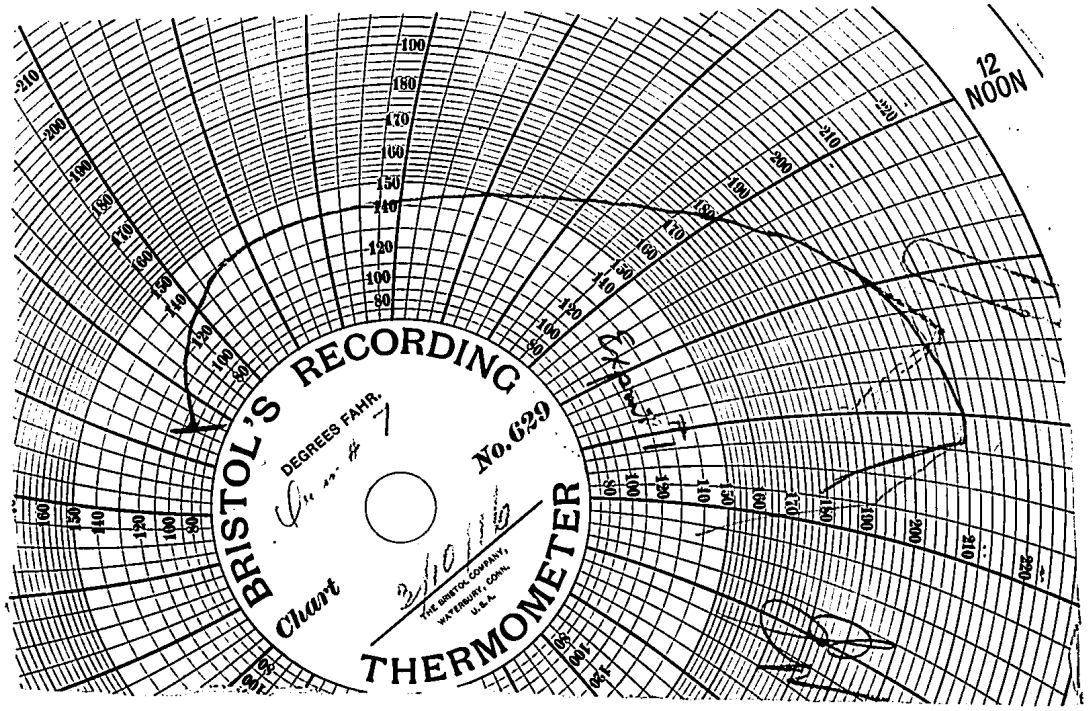
If 1000 lbs is required to make a 100% fill by direct printing the only way to get rid of this high pressure is to make the blank thicker, or put more shellac in it, or make less dense powder the latter is objectionable as it makes bad surface —

Blisters are entirely due to a greater density in the blank so its less compressionable

511 E

Print Transfers of 509
with Music Moulds.
If not Enough - use ~~other~~
Brushed 1412 6 Scenes

[ITEM(S) FOUND IN BOOK]



[ITEM(S) FOUND IN BOOK]

9/13/16

25. grams powder

weight glass + powder 86,280 grms

weight glass 87,300

87,300
86 280
1,020

Filed out

[ITEM(S) FOUND IN BOOK]

Nov. 6, 1918.

Mr. Edison:

I want to call your attention to the condition of our Working Moulds, they are in a very bad shape and some of them are running to long, looked at several of them under the Microscope, and noticed that they are all bitted up a little inside, this causes the nice little spits and cracks which are very annoying

Moulder